

92 the forging F by adjusting the diameters of the pipes 109, 117, by adjusting the diameter of the openings 131, by adjusting the size of the spacer 111 or by adjusting the density of the openings 131 (i.e. adjust spacing distances X or Y) during the system design stage. During operation of the apparatus 100, one can selectively adjust the cooling to desired areas of the forging F by adjusting pressure in each pipe 109, 117, 133. The aforementioned valves on the supply 127 could be used to adjust pressure. Any other technique to adjust pressure could also be used.

93 [0060] The present invention could leave these characteristics static during the quenching process.

In other words, the apparatus 100 could keep the selected pressures in the pipes 109, 117, 133 constant throughout the entire temperature range of the quenching process. Alternatively, the present invention could dynamically adjust the pressures in the pipes 109, 117, 133 during the quenching process. For example, the apparatus 100 could operate at a desired pressure until the coarse grain nickel alloy forging F exits the temperature range of the ductility trough (e.g. 1800-2100° F). Thereafter, the apparatus could operate at a reduced pressure for the remainder of the quenching process. Other variations are also possible.

IN THE CLAIMS:

Cancel claims 4 and 11.

Amend claims 1, 8 and 15 as follows.

- 94 1. (Once Amended) A method of quenching a material, comprising the steps of:
providing a material having a first section and a second section; and